



# FEMA

## Protecting Your Business From Wind

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### ARE YOU AT RISK?

If you aren't sure whether your business is at risk from hurricanes or tornadoes, check with your local building official, city engineer, or planning and zoning administrator. They can tell you whether you are in an area where these high-wind events occur. Also, they usually can tell you how to protect your business from high winds.

### WHAT YOU CAN DO

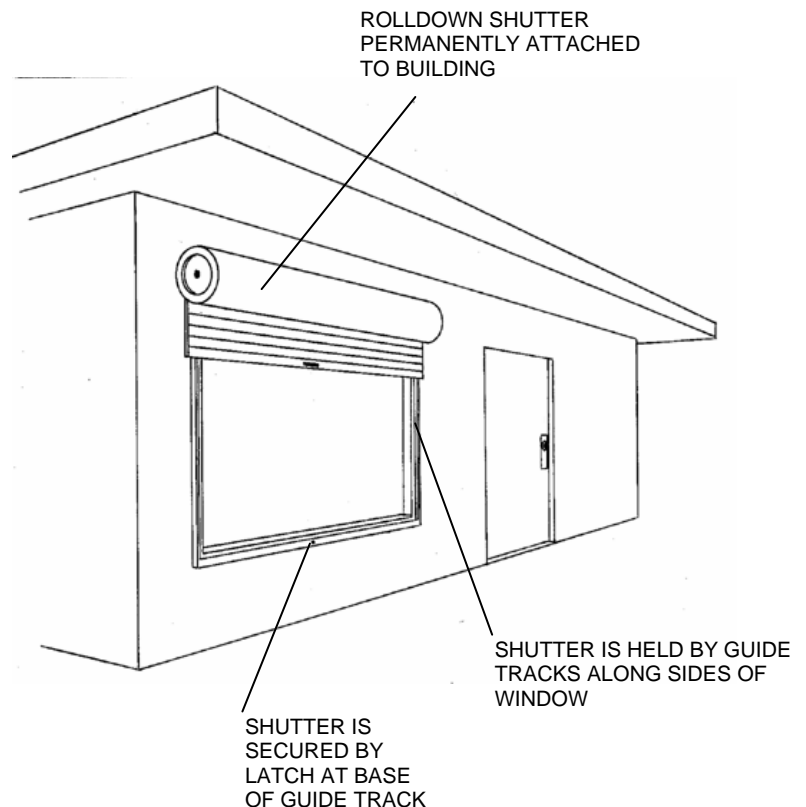
Protecting your business from high winds can involve a variety of actions, from inspecting and maintaining your buildings to installing protective devices. Most of these actions, especially those that affect the structure of your buildings or their utility systems, should be carried out by qualified maintenance staff or professional contractors licensed to work in your state, county, or city. One example of wind protection is installing shutters or other types of covers over windows and doors.

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## PROTECT WINDOWS AND DOORS

Protecting windows and doors is one of the most effective actions you can take to reduce your risk of wind damage. High winds and windborne debris can easily break unprotected windows and cause doors to fail. Once wind enters a building, the likelihood of severe structural damage increases, and the contents of the building will be exposed to the elements. The most reliable method of protecting windows and doors is installing permanent storm shutters. Alternatives include using temporary plywood covers, replacing existing glass with impact-resistant glass, and covering existing glass with a protective film.

Permanent storm shutters are usually made of aluminum or steel and are attached to a building in such a way that they can be closed quickly before a storm arrives. One type is the "rolldown" shutter (see figure), which is contained in a housing mounted above the window and lowered when necessary. Manually operated and motor-operated models are available.



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## Protect Windows and Doors

### TIPS

Keep these points in mind when you protect windows and doors:

- ✓ If your business is in an area where you will have little warning of high winds, permanent shutters that can be closed quickly, such as the rolldown shutter, are better than temporary plywood covers, which must be retrieved from storage and mounted with bolts or screws.
- ✓ If you decide to buy permanent shutters, look for models that meet the wind load and impact standards established for your area. These standards can be obtained from your local building official. If you have any questions about the strength of a specific model, check with the manufacturer.
- ✓ If you buy motor-operated shutters, make sure they also can be operated manually if the power fails.
- ✓ Permanent shutters are available in a wide range of sizes, so you can use them to protect many types of windows and doors, even large areas of glass.
- ✓ If you are constructing a new building in an area subject to high winds, avoid designs that include large areas of glass, windows with multiple panels, and double entry doors. The widths of individual doors and windows should not exceed 3 feet.

### ESTIMATED COST

Permanent storm shutters can cost \$50 to \$60 per square foot of window, including installation. So a shutter for a 3-foot-wide by 4-foot-high window could cost about \$600 to \$720.

### OTHER SOURCES OF INFORMATION

*Against the Wind*, FEMA 237 (Brochure 2-0003; Video 0-0001), 1993

*Building Performance: Hurricane Iniki in Hawaii -- Observations, Recommendations, and Technical Guidance*, FIA-23, January 29, 1993

*Building Performance: Hurricane Andrew in Florida -- Observations, Recommendations, and Technical Guidance*, FIA-22, December 21, 1992

*Best Build I, Constructing a Sound Coastal Home*, FEMA and the NAHB (videotape)

To obtain copies of FEMA documents, call FEMA Publications at 1-800-480-2520. Information is also available on the World Wide Web at <http://www.fema.gov>.